Listing of the Claims:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)
11. (Canceled)
12. (Canceled)
13. (Canceled)
14. (Canceled)
15. (Canceled)
16. (Canceled)

17. (New) An illumination device for use in an object inspection system, wherein the object includes an object inspection surface that exhibits a nontrivial bi-directional reflectance distribution function, the illumination device comprising:

an illumination panel defining a planar illuminating surface having a depth sufficient to illuminate the object inspection surface, the planar illuminating surface is angularly positioned away from a plane perpendicular to the inspection surface to provide illumination at a substantially constant angle of incidence across the entire portion of the inspection surface.

18. (New) The illumination device of claim 17 wherein the illuminating surface includes a plurality of discreet illumination sources, each source projecting illumination

onto a respective area of the inspection surface at the substantially constant angle of incidence.

19. (New) The illumination device of claim 18 wherein the illumination panel comprises a single panel wherein all of the discrete light sources are connected to the single panel, the single panel having a plurality of planar illuminating surfaces angularly positioned with respect to one another around the plane perpendicular to the inspection surface.

20. (New) The illumination device of claim 17 wherein the illumination panel comprises at least two panels each having a planar illuminating surface and a width perpendicular to the depth to maintain the substantially constant angle of incidence on the inspection surface.

21. (New) The illumination device of claim 17 wherein the inspection surface comprises the entire surface of the object in a field of view of an image sensing device.

22. (New) The illumination device of claim 17 wherein the illumination at the substantially constant angle of incidence provides substantially uniform illumination of the inspection surface.

23. (New) The illumination device of claim 22 wherein the substantially constant angle of incidence is defined by non-sequential ray tracing techniques.

24. (New) The illumination device of claim 17 wherein the substantially constant angle of incidence is an angle complementary to the angular position of the planar illuminating surface.

25. (New) The illumination device of claim 17 wherein the constant angle of incidence defines a nominal illumination angle for uniformly illuminating the inspection surface

to detect a non-uniformity in the inspection surface.

26. (New) An inspection device for use in inspecting semiconductor devices having a single plane inspection surface, the device comprising:

an imaging device including a lens arrangement and a sensing element;

an illumination panel defining a planar illuminating surface angularly positioned away from a plane perpendicular to the inspection surface, the planar illuminating surface including a plurality of discrete illuminating sources positioned along a depth of the panel, each illumination source is connected to the panel and is angularly positioned to provide illumination at a substantially constant angle of incidence across the entire inspection surface providing substantially uniform illumination of the inspection surface.

27. (New) The device of claim 26 wherein the illumination panel comprises a single conically-shaped panel having a plurality of planar illuminating surfaces positioned about the plane perpendicular to the inspection surface.

28. (New) The inspection device of claim 26 wherein the illumination panel comprises at least two panels angularly positioned to maintain the constant angle of incidence on the inspection surface.

29. (New) The inspection device of claim 26 wherein the inspection surface exhibits a nontrivial bi-directional reflectance distribution function.

30. (New) A method of illuminating an inspection surface of an object, wherein the inspection surface exhibits a nontrival bi-directional reflection distribution function, the method of illumination comprising the steps of:

providing an illumination panel having a planar illuminating surface including a depth, the illuminating surface angularly positioned away from a plane perpendicular to the

inspection surface;

projecting illumination from the planar illuminating surface at a substantially constant angle of incidence across the inspection surface to uniformly illuminate the inspection surface.

31. (New) The method of illuminating of claim 30 wherein providing the illumination panel further comprises providing a plurality of discreet illuminating sources connected to the panel and positioned along the depth of the planar illuminating surface, each discreet illuminating source illuminating a respective portion of the inspection surface at the substantially constant angle of incidence.

32. (New) The method of illuminating of claim 30 wherein the illumination panel comprises a single panel including a plurality of planar illuminating surfaces in a conical orientation around the plane perpendicular to the inspection surface.

33. (New) The method of illumination of claim 30 wherein the illumination panel comprises at least two panels positioned to maintain illumination at the substantially constant angle of incidence on the inspection surface.

34. (New) The method of illumination of claim 30 further comprising the step of determining a constant angle of incidence suitable for detecting a non-uniformity in the inspection surface of the object through uniform illumination of the inspection surface.

35. (New) The method of illumination of claim 34 wherein providing the illumination panel comprises the step of positioning the illuminating surface at a complementary angle with respect to the constant angle of incidence.

36. (New) The method of claim 34 wherein the step of determining the constant angle of incidence comprises performing non-sequential ray tracing techniques based on the non-uniformity to be detected.